Docket No.: 251290US0

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Shinji MORIYAMA, et al.

GROUP: 1756

SERIAL NO: 10/815,650

EXAMINER: DOTE, J. L.

FILED: April 2, 2004

FOR: TONER FOR ELECTROSTATIC IMAGE DEVELOPMENT

DECLARATION UNDER 37 C.F.R. 1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

Sir:

I, Shinji Moriyama, declare and state as follows:

1. I am a named coinventor of the above-identified application.

2.. I am familiar with the claims, and have read the Office Action mailed June 28, 2005, in the above-identified application.

3. A sample of the product, Shirasagi A-1, was obtained from the manufacturer (Japan EnviroChemicals, Ltd.[1] (URL: http://www.jechem.co.jp/index-e.html)).

4. The Shirasagi A-1 was measured with a laser diffraction particle size analyzer, SALD-2000J, commercially available from Shimadzu Corporation, and found to have a volume-based median particle size (D_{50}) of about 39.605 μm, as shown in the data sheet therefor, **attached herewith**.

5. While the SALD-2000J is different from the Coulter Multisizer II described in the specification of the above-identified application for measuring (D_{50}), it would be expected, nevertheless, that the (D_{50}) using the Coulter Multisizer II would have been of the same order of magnitude, and greater than the maximum of 5.6 μm of the present claims.

6. The commercial product described in the English translation of JP 61-203463 (Machida) as "Shirawashi A-1" is actually above-discussed Shirasagi A-1.

7. In Working Example 3 of Machida, there is no disclosure that toners (1), (6), (7) and (8) were produced from different charcoal powder starting materials. Thus, it is presumed that the Shirasagi A-1 was pulverized so as to be adjusted to have the desired particle size used. The coefficient of variation (CV) value can be freely adjusted by conditions of pulverization so that the CV value of the charcoal powder used in the examples of Machida cannot be assumed. To that end, the following experiments were conducted under my supervision and/or control.

8. A toner was prepared using the same raw materials as in Comparative Example 1 the above-identified application according to the following method.

Specifically, 9 parts by weight of Resin A, 9 parts by weight of Resin B, and 12 parts by weight of a charcoal powder "Taiko Activated Carbon SA 1000SA" (commercially available from Futamura Chemical Industries Co., Ltd, D50 :5.59 μm, CV :88.2 %) were melt-kneaded with a twin-screw kneader are, to give a masterbatch containing 40 % by weight of the charcoal powder.

Thirty parts by weight of the resulting masterbatch, 41 parts by weight of Resin A, 41 parts by weight of Resin B, 2 parts by weight of a charge control agent "BONTRON N-01" (commercially available from Orient Chemical Co., Ltd.), 0.2 parts by weight of a charge control agent "Copy Charge PSY" (commercially available from Clariant (Japan) K.K.), 1 part by weight of a polypropylene wax "Viscol 660P" (commercially available from SANYO CHEMICAL INDUSTRIES, LTD.) and 1.5 parts by weight of "Carnauba Wax C1" (commercially available from K.K. Kato Yoko) were mixed with a Henschel Mixer. Thereafter, the mixture was melt-kneaded with a twin-screw kneader, cooled, pulverized and classified, to give a powder having a volume-average particle size of 10 μm.

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[1] On information and belief, Japan EnviroChemicals, Ltd. was separated from Takeda Chemical Industries in April, 2003, and is now a subsidiary company of Osaka Gaa, as evidenced by the website printout **attached herewith**.

To 100 parts by weight of the resulting powder, 0.3 parts by weight of a hydrophobic silica "HVK 2150" (commercially available from Clariant (Japan) K.K.) were mixed and adhered with a Henschel Mixer, to give a toner. The dielectric loss tangent (tan d) of the resulting toner was 0.00514.

Further, 39 parts by weight of the resulting toner and 1261 parts by weight of the Carrier A were mixed with a Nauta Mixer, to give a two-component developer.

The background fogging (BG) and the thin-line reproducibility were determined or evaluated according to Test Example 2 of the above-identified application. As a result, BG was "1.02", and the thin-line reproducibility was "poor".

The toner prepared above showed an increase in dispersibility of the charcoal powder by using the masterbatch. It is also evident from the fact that the dielectric loss tangent of the toner is dramatically small as compared with that of the toner of Comparative Example 1.

However, while the toner showed the increase in dispersibility of the charcoal powder, the toner still has poor BG and the thin-line reproducibility. The reason why the toner has such properties is presumably as follows. Since the charcoal powder has too large CV, the charcoal powder that cannot be housed in the toner is exposed on the toner surface, thereby inhibiting the charging of the toner.

9. The data show that the effects of the present invention cannot be obtained when the CV value of the used charcoal powder does not satisfy the requirement of a CV of 80% or less.

10. The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

11. Further declarant saith not.

森山 伸二

Signature

Oct 25, 2005

Date

Customer Number

22850

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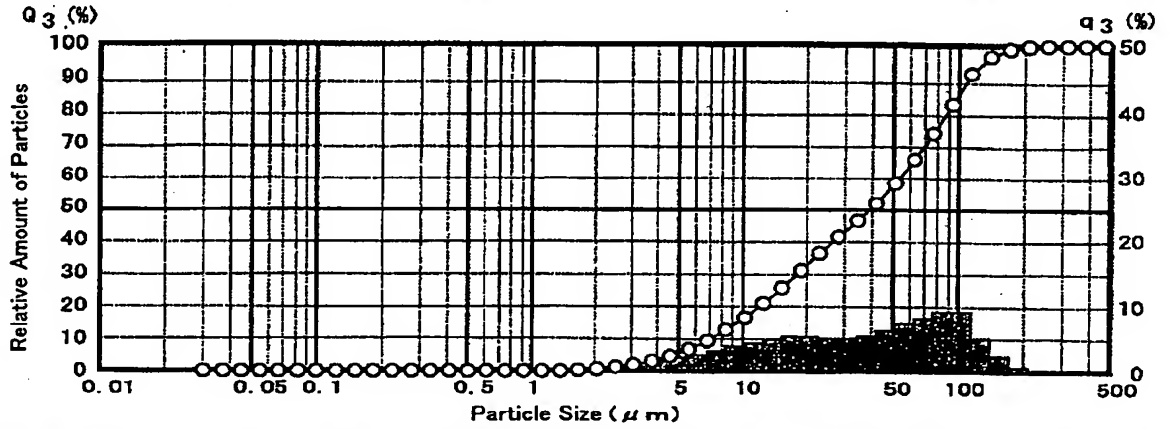
(OSMMN 07/05)

島津 SALD-2000J (SALD-2000-WJA2:V1.01)

(File Name) kasseitan
(Sample ID)
(Sample #)
(Date of Determination) 05/10/19
(Time of Determination) 13:29:14

Refractive Index=1.60-0.10i	Median Diameter : 39.605 Mode Diameter : 103.558	Average Value: 32.550 Standard Deviation: 0.462	10.0%D : 7.113 50.0%D : 39.605 90.0%D : 110.431	S Level : 0 Distribution Function : None D Shift : 0



	Particle Size x (μm)	Integration Value Q3 (%)	Difference Value q3 (%)		Particle Size x (μm)	Integration Value Q3 (%)	Difference Value q3 (%)		Particle Size x (μm)	Integration Value Q3 (%)	Difference Value q3 (%)
1	700.000	100.000	0.000	18	22.908	36.080	5.260	35	0.750	0.000	0.000
2	572.451	100.000	0.000	19	18.734	30.830	5.270	36	0.613	0.000	0.000
3	468.143	100.000	0.000	20	15.320	25.560	4.890	37	0.501	0.000	0.000
4	382.842	100.000	0.000	21	12.529	20.670	4.330	38	0.410	0.000	0.000
5	313.083	100.000	0.000	22	10.246	16.340	3.770	39	0.335	0.000	0.000
6	256.036	100.000	0.110	23	8.379	12.580	3.170	40	0.274	0.000	0.000
7	209.383	99.890	0.720	24	6.852	9.410	2.570	41	0.224	0.000	0.000
8	171.231	99.170	2.410	25	5.604	6.840	2.050	42	0.183	0.000	0.000
9	140.030	96.760	5.090	26	4.583	4.790	1.590	43	0.150	0.000	0.000
10	114.515	91.670	9.250	27	3.748	3.200	1.160	44	0.123	0.000	0.000
11	93.649	82.420	9.240	28	3.065	2.040	0.810	45	0.100	0.000	0.000
12	76.585	73.180	8.100	29	2.506	1.230	0.560	46	0.082	0.000	0.000
13	62.630	65.080	7.250	30	2.050	0.670	0.360	47	0.067	0.000	0.000
14	51.218	57.840	6.320	31	1.676	0.310	0.190	48	0.055	0.000	0.000
15	41.886	51.520	5.460	32	1.371	0.120	0.080	49	0.045	0.000	0.000
16	34.254	46.060	4.970	33	1.121	0.050	0.030	50	0.037	0.000	0.000
17	28.012	41.090	5.000	34	0.917	0.020	0.010	51	0.030	0.000	0.000

Sampling : Manual
Number of Determination : 4 Interval of Determination (sec) : 2
Range of Determined Absorbance (Maximum) : 0.200
Ultrasonic Exposure Time (sec) : __
Refractive Index: 1.60-010i
Average Number: 64
(Minimum) : 0.010
Dispersion Time (sec) : __

▶Japan EnviroChemicals, Ltd. Overview

MAIN MENU

Greetings

Two years ago, in April 2003, Life-Environment Company of Takeda Chemical Industries, Ltd. marked a first step forward , as Japan EnviroChemicals, Ltd. with a company creed of "Dedicate ourselves to create more comfortable living environment."

We succeeded the activated carbon business, which, over the 70 years of history, had accounted for the largest share in Japan, and the preservative business, which had been sustained, more than 30 years, by a reputation of high reliability. We have been strived to continue a strong market position and to actively work on new environmental products with unique characteristics such as ELISA test kits for environmental "diagnosis," phosphates adsorbent, and water treatment carrier.

In April 2005, all share of Japan EnviroChemicals were transferred to Osaka Gas Co.,Ltd. and Osaka Gas Chemicals Co.,Ltd to aim to expand our business further by making technology and know-how of the group together.We are sincerely looking forward to serving you soon.

Japan EnviroChemicals, Ltd.
President
Atsuo Kobayashi Ph.D.

Corporate Outline

Corporate Name:	Japan EnviroChemicals, Ltd.
The Date of Initiation:	April 1, 2003
Paid-in Capital:	2.1 billion yen (70% Osaka Gas Chemicals, Ltd. 30% Osaka Gas, Ltd.)
Description of Business:	Research and development, manufacturing and purchasing of activated carbon, wood preservatives, industrial preservatives, ELISA test kits, phosphates adsorbent, and water treatment carrier
Employees:	140

Offices, R&D Laboratory, Plant

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